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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,592	11/27/2001	Raghavan Menon	VIVC001/00US	9102

5514 7590 08/07/2006

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EXAMINER	
JONES, PRENELL P	
ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/994,592	MENON ET AL.	
	Examiner	Art Unit	
	Prenell P. Jones	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 May 2006*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-50 and 53-104* is/are pending in the application.

4a) Of the above claim(s) *98-104* is/are withdrawn from consideration.

5)☐ Claim(s) *1-40 and 43-85* is/are allowed.

6)☐ Claim(s) *41,87-89 and 92-95* is/are rejected.

7)☐ Claim(s) *90,91,96 and 97* is/are objected to.

8)☒ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments with respect to claims 1-50 and 53-104 have been considered but are moot in view of the new ground(s) of rejection.

Election/Restrictions

Newly submitted claims 98-104 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Group I (claims 1-50 and 53-97) claim a method and system for routing data within a switch fabric, whereas Group II (claims 98-104) claim synchronizing transmissions.

Inventions Group I and Group II are related as combination and subcombinations. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombinations as claimed for patentability, and (2) that the subcombinations has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because synchronizing transmissions is not needed for routing data within a switch fabric. The subcombinations has separate utility such synchronizing transmission in a communication environment.

Inventions Group I and Group II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention Group I and Group II has separate utility such as routing within a switch fabric environment and synchronizing transmissions. See MPEP § 806.05(d).

2. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 98-104 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nardin et al (US PG PUB 5,317,562) in view of Masaki et al (US PAT 5,640,389) and Bonomi et al (US Pat 6,219,352).

Regarding claim 41, Nardin discloses routing cells in a management switching system wherein the architecture includes an NTC for performing framing, cells are buffered according to priority, and timeout events occurring (Abstract, col. 5, line 11 thru col. 6, line 55, col. 8, line 68). Nardin is silent on multiple framers and sending plurality of cells after every cell from the plurality of cells in received within a timeout period. In a switching system managing cell routing, Masaki

discloses communicating and processing packet data wherein the architecture includes plurality of cell framers, switching fabric, wherein a selector distributes plurality of cells to cell framers (Fig. 15, col. 20, line 65 thru col. 21, line 35) and Bonomi discloses an switch environment supporting efficient transmission of frames wherein managing of cell routing includes flushing of cells of any incomplete received frames, and ATM switch buffers all cells of a frame until the last cell of a frame is received, then transmits the whole frame as associated with scheduling (substantially aligned in time) (Abstract, col. 5, line 25-47). Therefore, it would have been obvious to on of ordinary skill in the art at the time of the invention to be motivated to implement multiple framers as taught by Masaki, as well as, transmitting a complete received frame of cells according to scheduling as taught by Bonomi with the combined teachings of Nardin for the purpose of further managing cell routing and increasing throughput.

3. Claim 87, 89, 93 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman et al (US PG PUB 20020181455) in view of Pohjanvouri et al (US Pat. 6,567,396).

Regarding claims 87, 93 and 94, Norman discloses in a cell based switched fabric architecture, a switch fabric distributed scheduling, arbitration and buffering utilizing wherein scheduling schemes include control paths along with control information, which is used to regulate the flow of traffic (paragraph 0017, 0018), wherein the control information is received and transmitted at the distributed switch fabric (paragraphs 0047, 0048). Norman is silent on at least one source within randomized time slots. However, in a scheduling environment, Pohjanvouri discloses in a data communications system that also utilize managing data in a scheduling environment that includes a BTS receiving data from within randomized time slots (Abstract, a scheduling system that includes multiple BTS (scheduler) and BSC wherein different random access opportunities

are assigned priority so as that random access timeslots utilized between mobiles (source within random timeslot/destination) communicating, will allow transmission of data, BTS receives control data (col. 3, line 37-67, col. 4, line 1-67), perform arbitration based on control data mobile stations use random access as associated with timeslots to transmit control data, transmission decisions (arbitration) is dependent on priority of control data, and specify to at least one source at least one destination to which the at least one source should further forward control data (col. 7, line 9-63, col. 8, line 7-65, a mobile will wait until it identifies/detects any particular mobile to transmit control data via a random access channel/timeslot). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to be motivated to implement at least one source within a random timeslot as taught in Pohjanvouri scheduling environment with the teachings of Norman for the purpose of added precaution as to minimize or eliminate collision of data with respect to further manage communication of data in scheduling system.

Regarding claim 89, Norman further discloses control information including destination ID and priority ID (Fig. 3).

4. Claim 88 and 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman et al (US PG PUB 20020181455) in view of Pohjanvouri et al (US Pat. 6,567,396) as applied to claim 87 above, and further in view of Xu et al (US PG PUB 20030048792).

Regarding claim 88 and 92, as indicated above, Norman and Pohanvouri combined disclose managing data associated in a distributed scheduling environment wherein arbitration is based control information, wherein the scheduling is associated with switching device. However,

Norman and Pohanvouri fail to teach a plurality of switching elements, wherein each switch includes a distributed scheduler. In a communication system, Xu discloses a plurality of ATM/Fabric switches, whereby each switch includes a centralized and distributed scheduler (data flow is maintained in accordance with a predetermined order across switches, Abstract, Fig. 3, paragraph 0039, 0040, 0042). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to be motivated to implement multiple switches wherein each switch includes a distributed scheduler as taught by Xu with the combined teachings of Norman and Pohanvouri for the purpose of further managing traffic flow by enhancing the forwarding environment.

5. Claims 95 is rejected under 35 U.S.C. 103(a) as being unpatentable over Norman et al (US PG PUB 20020181455) in view of Pohjanvouri et al (US Pat. 6,567,396) as applied to claim 93 above, and further in view of in view of Vachee (US Pat. 4,367,549).

Regarding claim 95, as indicated above, Norman and Pohanvouri combined disclose managing data associated in a distributed scheduling environment wherein arbitration is based control information, wherein the scheduling is associated with switching device. However, Norman and Pohanvouri fail to teach RTS associated with control data. In analogous art In a switching system, Vachee discloses frames are divided up into time slots, and transfer of data is associated with multiple input/output links, communicating RTS signals used to transfer control signals (Abstract, Fig.1 and 2, col. 2, line 54-68, col. 4, line 44-45, col. 5, line 58-68). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement an RTS with control data as taught by Vachee with the combined teachings of

Norman and Pohjanvouri for the purpose of further managing transmission of data as to increase communication efficiently.

Allowable Subject Matter

1. Claim 1-40, 43-85 is allowed over prior art.

2. Claim 90, 91, 96 and 97 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

3. The following is a statement of reasons for the indication of allowable subject matter: Although the prior art discloses routing in a communication system that utilizes arbitration schemes and communicating RTS data, they fail to teach or suggest with respect to claims 1-2, a switch fabric that includes a plurality of fabric gateways and an arbitration component configured to arbitrate a second plurality of RTSs, with respect to claim 3, wherein shifting the frame position for each cell of a column one additional row from a shifted frame position in a prior column, with respect to claim 5, shifted frame associated with a plurality of rows, each row associated with the shifted frame associated with an output link, respect to claims 7-10, reordering the plurality of cells within the frame to produce a shifted frame, each cell being reordered so that each row associated with the frame is uniquely associated with a time slot associated with the shifted frame, with respect to claim 11, time-division de-multiplexing a plurality of CTSs associated with a second frame, a first CTS from the plurality of CTSs associated with a second frame being associated with an availability of a first RTS associated with a cell from the plurality of cells of a first frame, with respect to claim 13, third frame cells being next in time from the plurality of cells associated with the first frame, with respect to claim 14, a cell slot translator configured to shift, with respect to claims 15-22 & 75, switch fabric that

includes control portion that is unrelated to data portion of a cell, wherein the control portion includes RTS that identify virtual output queue (VOQ) having a buffered data portion, grouping a first plurality of RTSs and a second plurality of RTSs to produce a set of grouped RTSs, and arbitrating the set of grouped RTSs to produce a plurality of selected RTSs, with respect to claims 23-25, comparators coupled to a second memory wherein the comparators are configured to compare an input port schedule value with the plurality of input port requests to produce an output port grant, each comparator from the plurality of comparators being further configured to compare an output port schedule value with a plurality of output port grants including the produced output port grant to produce an input port/output port designation, with respect to claims 26-27, a switch fabric that include grouping a plurality of RTS, forming a plurality of vectors based on the grouped RTSs, wherein each vector is associated with a timeslot representing a status of an output port request for each link, with respect to claims 28-32, RTSs being stored in a grouping memory and the arbitration component arbitrating concurrently the first plurality of RTSs to produce a plurality of selected RTSs, with respect to claims 37-40, data alignment controller configured to send a forwarding signal to the data storage controller at the latest receipt time associated with the plurality of data cells that is within a timeout period, with respect to claim 42, before sending plurality of cells, providing an idle cell for each cell from the plurality of cells that are not received within timeout period, with respect to claims 43-50, a first receipt time and a second data cell associated with the first time slot and a second receipt time later that the first receipt time, with respect to 53-64 and 71-73, a switching fabric that includes a plurality of fabric gateway components coupled to a plurality of multiplexer/de-multiplexer components and providing at least a third plurality of multiplexer/de-multiplexer components coupled to its own plurality of fabric gateway components, removably coupling the first plurality of switching components and the second plurality of switching

components to the first plurality of multiplexer/de-multiplexer components, the second plurality of multiplexer/de-multiplexer components, with respect to claim 65, reconfiguring the first plurality of configurable components from the second configuration to the first configuration and removably coupling the second plurality of configurable components to the first plurality of configurable components, with respect to 65with respect to 74, distributed scheduler having a control path with a rate less than a rate of a control path of a centralized scheduler with a data path having a rate similar to the data rate of the distributed scheduler, with respect to claims 62-64, a switch fabric that includes a plurality of fabric gateway components, a first set of configurable components coupled to a plurality of fabric gateway components, with respect to claims 76-82, buffering the plurality of cells in a plurality of virtual output queues (VOQ) wherein a first VOQ being associated with the first priority value and the second priority value, each remaining VOQ from the plurality of VOQs being uniquely associated with a remaining priority value from the plurality of priority values, with respect to claim 90, distributed scheduler specifies to a source the destination to which the source should forward data by providing a CTS to the source, with respect to claims 91 and 97, control data and data correspond to the same time slots, and with respect to 96, specify includes providing at least one CTS to the source.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prenell P. Jones whose telephone number is 571-272-3180. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Prenell P. Jones
August 3, 2006

CHI PHAM
SUPERVISORY PATENT EXAMINER 8/3/06